

CLAIMS

1. *Streptococcus thermophilus* ST 111 strain as deposited on May 29, 2002 under the accession number LMG P-21524, encoding exopolysaccharide production.
2. A functional starter culture comprising an exopolysaccharide-producing lactic acid bacterial strain of claim 1.
3. A co-culture comprising an exopolysaccharide-producing lactic acid bacterial strain of claim 1.
4. Use of a functional starter culture or a co-culture according to claim 2 or 3 for the production of high-molecular-mass heteropolysaccharides of at least 2.10^6 Dalton during fermentation.
5. Use of a functional starter culture or a co-culture according to claim 2 or 3 for the fermentation of a food product.
6. A method for preparing an exopolysaccharide comprising culturing an exopolysaccharide-producing lactic acid bacterial strain in a medium comprising milk and lactalbumin hydrolysate.
7. A method according to claim 6, wherein said medium further comprises at least one additional mono- or disaccharide.
8. A method according to claim 6 or 7 characterized in that at least 60 % or 80 % by weight of said exopolysaccharide has a molecular mass of at least 2.10^6 Dalton.
9. A method according to any of claims 6 to 8 characterized in that said exopolysaccharide has the following structure:

$$\begin{array}{c} \beta\text{-D-Galp-(1-6)-}\bar{\beta}\text{D-Galp} \\ | \\ 1 \\ \downarrow \\ 4 \\ 2)\text{-}\alpha\text{-L-Rhap-(1-2)-}\alpha\text{-D-Galp-(1-3)-}\alpha\text{-D-Galp-(1-3)-}\alpha\text{-D-Galp-(1-3)-}\alpha\text{-L-Rhap-(1-} \\ \boxed{N} \end{array}$$
- 25 2) $\alpha\text{-L-Rhap-(1-2)-}\alpha\text{-D-Galp-(1-3)-}\alpha\text{-D-Galp-(1-3)-}\alpha\text{-D-Galp-(1-3)-}\alpha\text{-L-Rhap-(1-}$ N
wherein N is between 800 and 7000.
- 30 10. A method according to any of claims 7 to 9 wherein said monosaccharide is chosen from glucose, galactose or fructose.

11. A method according to any of claims 7 to 9 wherein said disaccharide is sucrose.
12. A method according to any of claims 6 to 11 wherein a strain according to claim 1 is used.
13. A high-molecular-mass exopolysaccharide of at least 2.10^6 Dalton obtainable by the 5 method of any of claims 6 to 12.
14. A method for improving the texture of a fermented product comprising adding at the start of or during the fermentation process, a culture of the *Streptococcus thermophilus* ST 111 strain of claim 1.
15. A method for improvement of water retention in a fermented product comprising 10 adding at the start of or during the fermentation process, a culture of *Streptococcus thermophilus* ST 111 strain of claim 1.
16. A method for decreasing syneresis of a fermented product comprising adding at the start of or during the fermentation process, a culture of the *Streptococcus thermophilus* ST 111 strain of claim 1.
- 15 17. A method for improvement of water retention during the fermentation process comprising adding at the start of or during the fermentation process, a culture of the *Streptococcus thermophilus* ST 111 strain of claim 1.
18. A method for producing a dairy product comprising adding to the initial dairy product 20 starter culture or adding during the fermentation process, a culture of the *Streptococcus thermophilus* ST 111 strain according to claim 1.
19. Use of a *Streptococcus thermophilus* ST 111 strain of claim 1 for the production of high-molecular-mass heteropolysaccharides of at least 10^6 Dalton in food fermentation processes.
20. Use of a functional starter culture or a co-culture according to claim 5 wherein said 25 food product is a dairy product.
21. Use of a functional starter culture or a co-culture according to claim 20 wherein said dairy product is chosen from the group of milk products, fermented milk drinks, yoghurts, cheeses, sour cream, whipped toppings, quark and kefir.
22. A dairy product obtainable by any of the methods of claims 14 to 18.

23. A dairy product according to claim 22 which is a Mozzarella cheese.
24. A functional starter culture for the fermentation of a yoghurt comprising a culture of the *Streptococcus thermophilus* ST 111 strain of claim 1 and a culture of *Lactobacillus delbrueckii* subsp. *bulgaricus*.
- 5 25. Use of a high-molecular-mass exopolysaccharide of at least 2.10^6 according to claim 13 as an additive to a fermented or non-fermented food product.
26. Use of a high-molecular-mass exopolysaccharide of at least 2.10^6 according to claim 13 as an additive to a fermented or non-fermented food product for improving water retention of the food product.
- 10 27. Use of a high-molecular-mass exopolysaccharide of at least 2.10^6 according to 13 as an additive to a fermented or non-fermented food product for decreasing syneresis.
28. Use of an exopolysaccharide according to claim 13 as an additive to a fermented or non-fermented food product for improving the texture of said food product.
29. Use according to any of claims 25 to 28 wherein said food product is chosen from the
- 15 30. A functional starter culture comprising an exopolysaccharide-producing lactic acid bacterial strain for the production of high-molecular-mass heteropolysaccharides of at least 2.10^6 Dalton during fermentation.
31. A co-culture comprising an exopolysaccharide-producing lactic acid bacterial strain for the production of high-molecular-mass heteropolysaccharides of at least 2.10^6 Dalton during fermentation.